UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,887	06/01/2001	Robert Angelo Mercuri	P-1047/N-7343	2070

7590 07/01/2005

James R.Cartiglia
Graftech, Inc.
Brandywine West
1521 Concord Pike, Suite 301
Wilmington, DE 19803

EXAMINER	
PIAZZA CORCORAN, GLADYS JOSEFINA	
ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/871,887	MERCURI, ROBERT ANGELO	
	Examiner	Art Unit	
	Gladys JP Corcoran	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13,14 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13,14 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9, 11,13,14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,397,917) and/or van Ommering et al. (US Patent No. 4,614,025) and further in view of Mercuri '074 (US Patent No. 6,037,074).

Dettling discloses a method of manufacturing a bipolar graphite article (bipolar assembly 36) by forming a first component (distribution plate 18, 402) with an operative side (with grooves) and a back side, forming a second component (distribution plate 20, 404) with an operative side (with grooves) and a back side, and assembling the components to form a bipolar graphite article (column 7, lines 5-10, 64-68; column 8, lines 29-42). As to claim 8, Dettling discloses pressing the components together (column 7, lines 66-68).

It is noted that Dettling discloses the importance of forming a tight seal between the two components (column 2, lines 20-25). It is considered well known in the bonding art to provide two plates with interlocking configurations (such as a protrusion on one plate and a recess complementary to the protrusion on the other plate) in order to secure a tight seal or bond between the plates when the plates are assembled (such

that the protrusion of the one plate is received in the recess of the other plate). For example, Chi discloses a method of securing the plates of a fuel cell together where an integral seal is formed between cooling plates by providing the plates with male and female joints as an alternative to other known methods (column 3, lines 43-47). Furthermore, van Ommering discloses another example in the field of manufacturing fuel cells where it is known to provide corresponding tongue 43 and groove 41 elements on two components (frame segments 21 and 23) in order to provide a positive seal between the components (column 6, lines 29-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the components in the method of manufacturing a bipolar graphite article as shown in Dettling with a protrusion and a corresponding recess in order to form a better seal between the components as is well known in the bonding arts in general and as particularly known in the field of forming fuel cells as exemplified by Chi and/or van Ommering.

Dettling discloses the first and second components are formed of porous carbon material including reticulated vitreous carbon, needle felt, or graphite particles (column 7, lines 5-10; column 8, lines 29-42). However, Dettling does not specifically disclose whether the porous carbon material is of a compressed mass of expanded graphite particles. Mercuri '074 discloses it is known in the art to form carbon flow field plates for fuel cells from a compressed mass of expanded graphite particles (column 2, line 46 to column 3, line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming a bipolar graphite article as

shown in Dettling by providing the component plates from known materials such as a compressed mass of expanded graphite particles as exemplified by Mercuri '074.

As to claims 2-7, 9, 11-14, 17-20, Dettling does not specifically disclose the method steps of forming the component plates, only reciting that the plates are molded or extruded from graphite particles (column 8, lines 29-43). Mercuri '074 discloses known methods of forming graphite component plates for flow field plates in fuel cells, such as the method steps as discussed for claims 2-7, 9, 11-14, 17-20 below. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling by forming the graphite components by known methods in the art as shown by Mercuri '074 in order to provide graphite components with increased sealability, increased flexural strength, improved heat dispersion and lower voltage drop (column 3, lines 34-37; column 4, lines 46-51).

As to claims 2, 11 and 19, Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping and embossing rollers) a first sheet of resin-impregnated compressed mass of expanded graphite particles to form the plate (column 4, lines 54-62; column 5, lines 49-53). As to claim 3, in Mercuri '074 the sheet was uncured at the forming step (the sheet is dried prior to stamping, however curing does not take place until after the plate is stamped and heated to 235°C (column 4, line 54 to column 5, line 3)). As to claim 4, in Mercuri '074 the resin impregnated compressed mass of expanded graphite particles is cured (column 5, lines 1-3). As to claim 5, Mercuri '074 discloses compressing the resin impregnated compressed mass of expanded graphite particles (calendered, column 4,

lines 9-16; stamping into shape, column 4, lines 54-63). As to claim 6, in Mercuri '074 the resin impregnated compressed mass of expanded graphite particles is uncured at the forming step (the sheet is dried prior to stamping, however curing does not take place until after the plate is stamped and heated to 235°C (column 4, line 54 to column 5, line 3)). As to claim 7, in Mercuri '074 the resin impregnated compressed mass of expanded graphite particles is cured (column 5, lines 1-3). As to claim 9, Mercuri '074 discloses the compressed mass of expanded graphite particles is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step in particular during the step of pressing and bonding the layers together (column 6, lines 58-67). Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps, particularly in view of Mercuri '074 which shows it is known in the art to bond formed sheets by curing during the pressing step (column 6, lines 58-67). Only the expected results would be attained. As to claim 11, Dettling discloses heating after assembling (hot pressing) and Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping and embossing rollers) a sheet of resin-impregnated graphite material (column 4, lines 54-62; column 5, lines 49-53). As to claim 13, Mercuri '074 discloses a resin content greater than 5% (15-20% resin see examples in column 4). Furthermore, the claimed ranges of resin are within the conventional ranges, and it would have been well within the purview of one of ordinary

skill in the art to provide such ranges, only the expected results would be attained. As to claim 14, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same composition and content of resin, only the expected results would be attained. As to claim 17, Mercuri '074 discloses the claimed density of the graphite sheet (see column 4, lines 16,40 to 45, 68 and column 5, line 1). Furthermore, the claimed density ranges are within the conventional ranges for graphite sheets and it would have been well within the purview of one of ordinary skill in the art to provide sheets with conventional densities, only the expected results would be attained. As to claim 18, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same density, only the expected results would be attained. As to claim 19, Dettling discloses bonding the components after assembling (column 4, lines 15-25) and Mercuri '074 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by stamping) a sheet of resin-impregnated compressed mass of expanded graphite particles (column 4, lines 54-62). As to claim 20, Dettling bonds the components by heating up the bipolar graphite article (column 4, lines 15-25).

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074 as applied to the claims above, and further in view of Edgington et al. (US Patent No. 5,589,301).

As discussed above, Dettling discloses manufacturing a graphite bipolar article by forming two graphite components and then pressing the components in order to assemble the plates together and bonding the components to form the bipolar article for

a fuel cell. As discussed above, it would have been obvious to provide a corresponding protrusion and recess in the components as is well known and exemplified by Chi and/or van Ommering in order to provide an improved seal. Also, as discussed above, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the graphite components from known methods as shown by Mercuri '074 that are later cured in a heating step.

As to claim 10, Mercuri '074 discloses providing sheets of compressed mass of expanded graphite particles for the graphite components (column 4, lines 54-55), then impregnating the sheet with a resin to form uncured resin impregnated sheets (column 4, lines 55-58), then embossing (mechanically stamping into a shape) to from the sheet components, and curing the resin in the components (column 5, lines 1-3).

Mercuri '074 discloses that the preferred method is to calender the resin containing sheet by roll pressing (column 3, lines 36-38), however does not explicitly state that the resin impregnated sheet is calendered prior to the embossing step. It is known to calender impregnated webs in order to properly impregnate the web and to achieve the desired thickness of the web prior to further processing. For example, Edgington discloses a method of impregnating a web where the web is calendered between rollers 17 in order to impregnate the web and to achieve a uniform thickness prior to further processing steps (column 5, lines 44-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar article as shown by Dettling, Chi and/or van Ommering and Mercuri '074, by calendering the resin impregnated graphite sheet prior to embossing as is well known and

exemplified by Edgington in order to provide uniform thickness and to properly impregnate the web prior to further processing.

4. Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '074 (optionally in view of Edgington) as applied to claims 8 and 10 above, and further in view of Selover, Jr. et al. (US Patent No. 4,014,730).

It is noted that Claim 10 currently does not distinctly claim that the curing step bonds the components together.

It is well known to bond two uncured resin impregnated composites by pressing, curing and bonding in the same step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. Mercuri '074 discloses the graphite material is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step and also curing and bonding the sheets together (column 6, lines 58-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results would be attained. This is particularly true in view of Selover, which discloses it is known to bond two resin impregnated graphite components by curing during the pressing step (column 2, lines 49 to column 3, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling et al., Chi and/or van Ommering and Mercuri '074 (and optionally Edgington) by curing the resin impregnated graphite component during

the pressing step in order to reduce the number of manufacturing steps and as is known in the art and exemplified by Selover when bonding two graphite components.

5. Claims 1-11,13,14 and 17-20 are rejected under 35 U.S.C. 103(a) as being obvious over Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,397,917) and/or van Ommering et al. (US Patent No. 4,614,025) and further in view Mercuri '336 et al. (US Patent No. 6,432,336).

The applied reference Mercuri '336 has a common Inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Dettling discloses a method of manufacturing a bipolar graphite article (bipolar assembly 36) by forming a first component (distribution plate 18, 402) with an operative side (with grooves) and a back side, forming a second component (distribution plate 20, 404) with an operative side (with grooves) and a back side, and assembling the components to form a bipolar graphite article (column 7, lines 5-10, 64-68; column 8, lines 29-42). As to claim 8, Dettling discloses pressing the components together (column 7, lines 66-68).

It is noted that Dettling discloses the importance of forming a tight seal between the two components (column 2, lines 20-25). It is considered well known in the bonding art to provide two plates with interlocking configurations (such as a protrusion on one plate and a recess complementary to the protrusion on the other plate) in order to secure a tight seal or bond between the plates when the plates are assembled (such that the protrusion of the one plate is received in the recess of the other plate). For example, Chi discloses a method of securing the plates of a fuel cell together where an integral seal is formed between cooling plates by providing the plates with male and female joints as an alternative to other known methods (column 3, lines 43-47). Furthermore, van Ommering discloses another example in the field of manufacturing fuel cells where it is known to provide corresponding tongue 43 and groove 41 elements on two components (frame segments 21 and 23) in order to provide a positive seal between the components (column 6, lines 29-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the components in the method of manufacturing a bipolar graphite article as shown in Dettling with a protrusion

and a corresponding recess in order to form a better seal between the components as is well known in the bonding arts in general and as particularly known in the field of forming fuel cells as exemplified by Chi and/or van Ommering.

Dettling discloses the first and second components are formed of porous carbon material including reticulated vitreous carbon, needle felt, or graphite particles (column 7, lines 5-10; column 8, lines 29-42). However, Dettling does not specifically disclose whether the porous carbon material is of a compressed mass of expanded graphite particles. Mercuri '336 discloses it is known in the art to form carbon flow field plates for fuel cells (column 2, lines 58-60) from a compressed mass of expanded graphite particles (column 9, lines 19-32). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming a bipolar graphite article as shown in Dettling by providing the component plates from known materials such as a compressed mass of expanded graphite particles as exemplified by Mercuri '336.

As to claims 2-7, 9, 11-14, 17-20, Dettling does not specifically disclose the method steps of forming the component plates, only reciting that the plates are molded or extruded from graphite particles (column 8, lines 29-43). Mercuri '336 discloses known methods of forming graphite component plates for flow field plates in fuel cells, such as the method steps as discussed for claims 2-7, 9, 11-14, 17-20 below. It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling by forming the graphite components by known methods in the art as shown by Mercuri '336 in order to provide

graphite components with increased sealability and increased strength (column 3, lines 6-14).

As to claims 2, 11 and 19, Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated compressed mass of expanded graphite particles to form the plate (column 9, lines 43-46). As to claim 3, in Mercuri '336 the sheet was uncured at the forming step (column 9, lines 43-47). As to claim 4, in Mercuri '336 the resin impregnated compressed mass of expanded graphite particles is cured (column 9, lines 46-47). As to claim 5, Mercuri '336 discloses compressing the resin impregnated compressed mass of expanded graphite particles (column 9, lines 39-40). As to claim 6, in Mercuri '336 the resin impregnated compressed mass of expanded graphite particles is uncured at the forming step (column 9, lines 43-47). As to claim 7, in Mercuri '336 the resin impregnated compressed mass of expanded graphite particles is cured (column 9, lines 46-47). As to claim 9, Mercuri '336 discloses the compressed mass of expanded graphite particles is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results would be attained. As to claim 10, Mercuri '336 discloses providing sheets of compressed mass of expanded graphite particles for the graphite components (column 9, lines 19-33), then impregnating the

sheet with a resin to form uncured resin impregnated sheets (column 9, lines 34-38), then the uncured resin impregnated sheet is calendered (column 9, lines 39-44), then embossing to from the sheet components (column 9, lines 43-45), and curing the resin in the components (column 9, lines 46-47). As to claim 11, Dettling discloses heating after assembling (hot pressing; column 4, lines 15-25) and Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated graphite material (column 9, lines 43-46). As to claim 13, the claimed ranges of resin are within the conventional ranges, and it would have been well within the purview of one of ordinary skill in the art to provide such ranges, only the expected results would be attained. As to claim 14, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same composition and content of resin, only the expected results would be attained. As to claim 17, Mercuri '336 discloses the claimed density of the graphite sheet (column 7, lines 53-55). Furthermore, the claimed density ranges are within the conventional ranges for graphite sheets and it would have been well within the purview of one of ordinary skill in the art to provide sheets with conventional densities, only the expected results would be attained. As to claim 18, it would have been well within the purview of one of ordinary skill in the art to provide the plates with the same density, only the expected results would be attained. As to claim 19, Dettling discloses bonding the components after assembling (column 4, lines 15-25) and Mercuri '336 discloses that it is known to form the graphite material plates by embossing (mechanically deformed by embossing) a sheet of resin-impregnated graphite material (column 9, lines 43-46). As

to claim 20, Dettling bonds the components by heating up the bipolar graphite article (column 4, lines 15-25).

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al. in view of Chi and/or van Ommering and Mercuri '336 as applied to claim 10 above, and further in view of Selover, Jr. et al. (US Patent No. 4,014,730).

It is noted that Claim 10 currently does not distinctly claim that the curing step bonds the components together.

It is well known to bond two uncured resin impregnated composites by pressing, curing and bonding in the same step. Mercuri '336 discloses the graphite material is resin impregnated and uncured at the step of forming and then curing occurs at a later heating step. Dettling discloses heating the graphite components during the pressing step to assemble the components together. It would have been obvious to one of ordinary skill in the art at the time of the invention to cure the components during the pressing step in order to reduce the number of manufacturing steps. Only the expected results would be attained. This is particularly true in view of Selover, which discloses it is known to bond two resin impregnated graphite components by curing during the pressing step (column 2, lines 49 to column 3, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the bipolar graphite article as shown in Dettling et al., Chi and/or van Ommering and Mercuri '336 by curing the resin impregnated graphite component during the pressing step in order to reduce the number of manufacturing steps and as is known in the art and exemplified by Selover when bonding two graphite components.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-9, 11, 13-14, 17-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/185085 in view of Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,416,955) and/or van Ommering et al. (US Patent No. 4,565,749) and further in view of Mercuri '074 (5,885,728).

Claims 1-9 of 10/185085 disclose all the limitations of claims 1-9 of the current Application except that the graphite article is a bipolar graphite article and that the second component has a recess complementary to the protrusion of the first component where the protrusion is received in the recess. These limitations are fully disclosed by the references Dettling, Chi, and/or van Ommering as discussed above. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming a graphite article as shown in 10/185085 for forming a bipolar article and where the second component has a recess for the protrusion to be received in as

shown by Dettling, Chi, and/or van Ommering. Claims 11-14, 17-20 are rejected in view of Mercuri '074 as discussed above.

This is a provisional obviousness-type double patenting rejection.

9. Claim 10 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/185085 in view of Dettling et al. (US Patent No. 4,732,637) in view of Chi (US Patent No. 4,416,955) and/or van Ommering et al. (US Patent No. 4,565,749), Mercuri '074 (US Patent No. 5,885,728), and Edgington et al. (US Patent No. 5,589,301).

Claim 13 of 10/185085 disclose all the limitations of claim 10 of the current Application except that the graphite article is a bipolar article, that the uncured resin impregnated sheets are calendared and then embossed, and that the second component has a recess where the protrusion is received in the recess. These limitations are fully disclosed by the references Dettling, Chi, and/or van Ommering as discussed above. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of forming a graphite article as shown in 10/185085 for forming a bipolar article and where the second component has a recess for the protrusion to be received in as shown by Dettling, Chi, and/or van Ommering. Claims 11-14, 17-20 are rejected in view of Mercuri '074 as discussed above.

This is a provisional obviousness-type double patenting rejection.

10. Claims 1-11, 13-14, 17-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16

of copending Application No. 10/477989 in view of Dettling et al. (US Patent No. 4,732,637), Chi (US Patent No. 4,416,955), van Ommering et al. (US Patent No. 4,565,749), Mercuri '074 (US Patent No. 5,885,728), Edgington et al. (US Patent No. 5,589,301) and/or Selover, Jr. et al. (US Patent No. 4,014,730).

Most of the limitations of the claims in the instant application are recited in the Application No. 10/477989, any limitations not recited are considered obvious in light of the references Dettling et al., Chi, van Ommering et al., Mercuri '074, Edgington et al. and/or Selover, Jr. et al. as discussed above.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

11. Applicant's arguments filed April 28, 2005 have been fully considered but they are not persuasive.

Applicant argues on page 9 the purpose of providing a protrusion-recess joint between the bipolar plates is to improve electrical conductivity. Such arguments are not commensurate in scope with the claims.

Applicant argues on pages 10 to 11 that the plates in Dettling are not made from adequate plates but plates that would otherwise be unusable. Such arguments are not commensurate in scope with the claims and the references meet all the claim limitations as currently written.

Applicant argues on page 11 that the reference Chi does not mention bipolar plates. The references Chi is cited to show an example that it is known in the fuel cell art to provide a method of securing the plates of a fuel cell together where an integral

seal is formed between cooling plates by providing the plates with male and female joints as an alternative to other known methods.

It is unclear how the arguments on pages 12-14 relate to the claim limitations as currently written.

Applicant argues on pages 14-15 that the double patenting rejections should be withdrawn because the copending Application is a continuation in part of the instant application and that the instant Application will issue prior to the cited application. The Double Patenting rejections are provisional rejections and would be withdrawn if and when it is appropriate.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys J Piazza Corcoran whose telephone number is (571) 272-1214. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gladys JP Corcoran
Primary Examiner
Art Unit 1733

GJPC